CLAIMS:

1.   An architecture facilitating authentication of goods, the architecture comprising:

a matrix-generator configured to produce an authentication-transformation matrix based, at least in part, upon a pre-defined humanly perceptible authentication pattern and a watermark of marked original goods, wherein a function of the matrix and the marked original goods produces a humanly perceptible pattern that is significantly similar to the authentication pattern;

a goods authenticator configured to facilitate authentication that subject goods which allegedly correspond to the marked original goods are genuine, wherein the authentication is based, at least in part, upon a humanly perceptible resultant pattern which is produced, at least in part, from the authentication-transformation matrix and the subject goods.

2.   An architecture as recited in claim 1, wherein the good authenticator is further configured to present the humanly perceptible resultant pattern.

3.   An architecture as recited in claim 1, wherein the type of the authentication pattern and the resultant pattern is selected from a group consisting of image, audio, video, software, multimedia, database, and dataset.

4.   An architecture as recited in claim 1, wherein the type of the original and subject goods is selected from a group consisting of image, audio, video, software, multimedia, database, and dataset.

5.   An architecture as recited in claim 1, wherein the authentication pattern identifies one or more entities associated with the original goods.

6. A processor-readable medium having processor-executable instructions that, when executed by a processor, performs a method comprising:

obtaining a pre-defined humanly perceptible authentication pattern and a watermark of marked original goods;

producing an authentication-transformation matrix based, at least in part, upon the authentication pattern and the watermark, wherein a function of the matrix and the marked original goods produces a humanly perceptible resultant pattern that is significantly similar to the authentication pattern.

7. A medium as recited in claim 6, wherein the humanly perceptible resultant pattern is nearly identical to the authentication pattern.

8. A medium as recited in claim 6, wherein the humanly perceptible resultant pattern is identical to the authentication pattern.

9. A medium as recited in claim 6, wherein the method further comprises storing the authentication-transformation matrix in association with the watermark of marked original goods or the original goods.

10. A medium as recited in claim 6, wherein the method further comprises transmitting the authentication-transformation matrix.

11.   A medium as recited in claim 6, wherein the type of the authentication pattern and the resultant pattern is selected from a group consisting of image, audio, video, software, multimedia, database, and dataset.

12.   A medium as recited in claim 6, wherein the type of the original goods is selected from a group consisting of image, audio, video, software, multimedia, database, and dataset.

13.   A medium as recited in claim 6, wherein the authentication pattern identifies one or more entities associated with the original goods.

14.   A system comprising:

a processor and a memory;

a medium as recited in claim 6.

MS1-1647us
lee@hayes pllc 509-324-9256
54
1119031009 MS1-1647US.PAT.APP.FINAL
Atty: kasey christie

15. A method comprising:

obtaining a pre-defined humanly perceptible authentication pattern and a watermark of marked original goods;

producing an authentication-transformation matrix based, at least in part, upon the authentication pattern and the watermark, wherein a function of the matrix and the marked original goods produces a humanly perceptible resultant pattern that is significantly similar to the authentication pattern.

16. A method as recited in claim 15, wherein the humanly perceptible resultant pattern is nearly identical to the authentication pattern.

17. A method as recited in claim 15, wherein the humanly perceptible resultant pattern is identical to the authentication pattern.

18. A method as recited in claim 15 further comprising storing the authentication-transformation matrix in association with the watermark of marked original goods or the original goods.

19. A method as recited in claim 15 further comprising transmitting the authentication-transformation matrix.

20.   A method as recited in claim 15, wherein the type of the authentication pattern and the resultant pattern is selected from a group consisting of image, audio, video, software, multimedia, database, and dataset.

21.   A method as recited in claim 15, wherein the type of the original goods is selected from a group consisting of image, audio, video, software, multimedia, database, and dataset.

22.   A method as recited in claim 15, wherein the authentication pattern identifies one or more entities associated with the original goods.

23.   A computer comprising one or more processor-readable media having processor-executable instructions that, when executed by the computer, perform the method as recited in claim 15.

24. A system comprising:

a data-retrieval unit configured to obtain a pre-defined humanly perceptible authentication pattern and a watermark of marked original goods;

a matrix-generation unit configured to produce an authentication-transformation matrix based, at least in part, upon a pre-defined humanly perceptible authentication pattern and a watermark of marked original goods, wherein a function of the matrix and the marked original goods produces a humanly perceptible pattern that is significantly similar to the authentication pattern.

25. A system as recited in claim 24, wherein the humanly perceptible resultant pattern is nearly identical to the authentication pattern.

26. A system as recited in claim 24, wherein the humanly perceptible resultant pattern is identical to the authentication pattern.

27. A system as recited in claim 24 further comprising a data storage sub-system configured to store the authentication-transformation matrix in association with the watermark of marked original goods or the original goods.

28. A system as recited in claim 24 further comprising a data transmission sub-system configured to transmit the authentication-transformation matrix to an goods authentication system.

29. A system as recited in claim 24, wherein the type of the authentication pattern and the resultant pattern is selected from a group consisting of image, audio, video, software, multimedia, database, and dataset.

30. A system as recited in claim 24, wherein the type of the original goods is selected from a group consisting of image, audio, video, software, multimedia, database, and dataset.

31. A system as recited in claim 24, wherein the authentication pattern identifies one or more entities associated with the original goods.

32. A processor-readable medium having processor-executable instructions that, when executed by a processor, performs a method comprising:

obtaining an authentication-transformation matrix, the matrix being based, at least in part, upon a pre-defined humanly perceptible authentication pattern and a watermark of marked original goods, wherein a function of the matrix and the marked original goods produces a humanly perceptible pattern that is significantly similar to the authentication pattern;

generating a humanly perceptible resultant pattern based, at least in part, upon the authentication-transformation matrix and subject goods.

33. A medium as recited in claim 32, wherein the humanly perceptible resultant pattern is nearly identical to the authentication pattern.

34. A medium as recited in claim 32, wherein the humanly perceptible resultant pattern is identical to the authentication pattern.

35. A medium as recited in claim 32, wherein the method further comprises presenting the humanly perceptible resultant pattern.

36. A medium as recited in claim 32, wherein the type of the authentication pattern and the resultant pattern is selected from a group consisting of image, audio, video, software, multimedia, database, and dataset.

MS1-1647us
lee@hayes plic 509-324-9256
59
1119031009 MS1-1647US.PAT.APP.FINAL
Atty: kasey christie

37. A medium as recited in claim 32, wherein the type of the original and subject goods is selected from a group consisting of image, audio, video, software, multimedia, database, and dataset.

38. A medium as recited in claim 32, wherein the authentication pattern identifies one or more entities associated with the original goods.

39. A goods authentication device comprising:

an audio and/or visual output unit;

a medium as recited in claim 32.

40. A method for authenticating goods, the method comprising:

obtaining subject goods and an authentication-transformation matrix, the matrix being based, at least in part, upon a pre-defined humanly perceptible authentication pattern and a watermark of marked original goods, wherein a function of the matrix and the marked original goods produces a humanly perceptible pattern that is significantly similar to the authentication pattern;

generating a humanly perceptible resultant pattern based, at least in part, from the authentication-transformation matrix and the subject goods.

41. A method as recited in claim 40, wherein the humanly perceptible resultant pattern is nearly identical to the authentication pattern.

42. A method as recited in claim 40, wherein the humanly perceptible resultant pattern is identical to the authentication pattern.

43. A method as recited in claim 40 further comprising presenting the humanly perceptible resultant pattern.

44. A method as recited in claim 40, wherein the type of the authentication pattern and the resultant pattern is selected from a group consisting of image, audio, video, software, multimedia, database, and dataset.

45. A method as recited in claim 40, wherein the type of the original and subject goods is selected from a group consisting of image, audio, video, software, multimedia, database, and dataset.

46. A method as recited in claim 40, wherein the authentication pattern identifies one or more entities associated with the original goods.

47. A computer comprising one or more processor-readable media having processor-executable instructions that, when executed by the computer, perform the method as recited in claim 40.

48.   A goods authentication system, comprising a goods authenticator configured to facilitate a determination regarding whether subject goods are genuine based at least in part upon an presentation of a humanly perceptible pattern based upon a combination of a pre-defined transformation matrix and the subject goods.

49.   A system as recited in claim 48, wherein the pre-defined transformation matrix is based, at least in part, upon a pre-defined humanly perceptible authentication pattern and a watermark of marked original goods, wherein a function of the matrix and the marked original goods produces a humanly perceptible pattern that is significantly similar to the authentication pattern.

50. A processor-readable medium having processor-executable instructions that, when executed by a processor, performs a method comprising:

obtaining original unmarked goods;

deterministically constructing a watermark based upon a projection from the goods.

51. A medium as recited in claim 50, wherein original unmarked goods are small.

52. A medium as recited in claim 50, wherein original unmarked goods is defined as a vector of size $n \times 1$ and the goods have a value n below $\sqrt{n} < 100$.